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ABSTRACT

A cybernetic unit in driver education was developed to help grade 10 students develop the skills needed to acquire and process driver education information and prepare for the driving phase of driver education in grade 11. Students used a simulator to engage in a series of scenarios designed to promote development of social, behavioral, and mental processing skills. The students received training in using the simulator, creating graphic organizers, taking notes, and keeping a journal. They used the simulator to engage in self-corrected behavior and evaluate themselves from self-corrected feedback. The course also featured cooperative learning sessions and resolution lessons. A series of questionnaires and surveys about road rage and attitudes toward safe driving were administered before and after the 9-week course. A comparison of the students' pretest and posttest scores established that the course improved their knowledge of how to avoid road rage, their ability to identify and analyze aggressive and/or dangerous acts, and their critical and creative thinking skills. (The bibliography lists 30 references. The following items are appended: a road rage survey; student questionnaires on dangerous acts and aggressive acts; checklists to assess novice drivers' creative and critical thinking skills; and a cybernetic unit assessment sheet.) (MN)

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ED 466 997

TEACHING DRIVER EDUCATION TECHNOLOGY TO NOVICE DRIVERS

ANTHONY YOUNG

An Action Research Project Submitted to the Graduate Faculty of the School of Education in Partial Fulfillment of the Requirements for the Degree of Master of Arts in Teaching and Leadership

Saint Xavier University & Skylight

Field-Based Masters Program

Chicago, Illinois

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ABSTRACT

The targeted population was a driver education class in a high school located in the suburb of a large metropolitan area in Illinois. The problem was that novice drivers are over-represented in car accident reports.

It has been documented that there is a need to develop technical in car instructions to teach driving and perception skills, which provide feedback for driver performance. An analysis of the probable cause data revealed the need to develop participative classroom units for peer-focused seminars, individual study projects, and group work. There was also a stated need to develop instructor's training to support the use of new interactive media.

The driver education literature suggested that teachers need to initiate a broad effort to develop a more intensive and comprehensive form of driver education, which can lead to crash reduction of novice drivers.

Post intervention data indicated an increase in students' knowledge of identifying dangerous and aggressive driving acts, and also an increase in students' knowledge to avoid road rage when driving behind the wheel.

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CHAPTER 1

PROBLEM STATEMENT AND CONTEXT

General Statement Of Problem

The targeted students were tenth grade novice driver's. Students exhibited a lack of important skills needed to acquire and process driver education information. Evidence of the problem included students' use of handouts, completed and submitted assignments, and numerous retakes of the state test. Other evidence that existed was students failed to recognized potential hazards, and make quick decisions at a safe distance, while driving.

Immediate Problem Context

The targeted high school is located in a western suburb of Chicago. The school served ninth through twelfth graders with a total of 2,356 students. The average class size for the school was 21 students. The ethnic make up of the school population was 58.5% Black, 30.6% Hispanic, 8.5% White and 2.5% Asian/Pacific islander. The population included 26.0% of students from low-income families. English limited proficient students were 13.2%. The school had an 82.3% attendance rate with a 23.9% mobility rate. Of the 2,356 students 20 were considered chronic truant. The graduation rate for the targeted school was 70.1%. Act scores had a composite of 18.4% (State School Report Card 2000).

The school district consisted of one superintendent, two assistant superintendents, two administrative assistants to the superintendent, one principal and one assistant principal. The total number of the faculty employed by the district was 279. The average years of teaching experience was 16.4 years. Teachers with Bachelor's Degrees were 31.2% while teachers with Masters' Degree were 68.8%. The racial make up of the faculty was 82.8% White and 15.1% Black. Males made up 45.9% of the teacher population while 54.1% were females (State School Report Card 2000).

The Surrounding Community

During the 2000-2001 school year this district expected all revenues to increase 4%. This was accredited to the foreseen increase in the value of real estate within the district. Revenues from state sources, which account for 6% of all monies received in the education fund, were expected to raise 1%. The district's budget for 2000-2001 school year supported instructional improvement initiatives. These initiatives included improving student's scores on state and national assessments, and promoting parental involvement. The district offered interdisciplinary study programs, and dual credit programs. They attempted to meet the needs of all students, from the academically gifted to those who were below grade level upon entrance into high school. At the targeted high school students accepted diversity and valued their differences. The differences were reflected in the celebrations of various traditions and holidays by the entire school, clubs or specialty groups within the school.

The National Context

The learning process involves making many mistakes and turning them into learning experiences. The purpose of driver education was to eliminate the excess risk of novice drivers, and assist them to perform safely during their first impressionable years of driving. While crash problems of the novice driver remained excessive, they are the main focus of driver education classes. The question for driver preparation is whether the careful programming of clearly identified key events could improve upon experience as a teacher (Waller, 1993, online). Because of the increased cost and number of crashes, demographics and economic trends had an increased market demand for driver education. The overrepresentation of novice drivers is an international phenomenon, although it varies in size from country to country. The overrepresentation is due to immaturity and inexperience (Smith, 1993, online).

Most novice drivers' crashes were caused by what they chose to do, as much as by what they were unable to do. Increased risk came from inappropriate behavior and deliberately taking risky actions. Novice drivers' eye movement showed fixation closer to the car, they were so preoccupied with lane tracking that they lack spare mental capacity to search ahead for potential hazard (Jonch, 1991, online).

Novice drivers were unable to maintain full attention to the whole driving environment, slower to recognize potential hazards and cope with them. Young drivers are over represented in only a few types of crashes: speed related, loss of control, nighttime crashes, and inappropriate speed in curves (Trankle, 1990, online).

Compared to more experience drivers, Novice drivers' more often choose to drive too fast, follow other vehicles too closely, accept smaller gaps in traffic, and allowed less room for safety. This is why they have had more rear-end and run-off-the-road crashes then experienced drivers.

CHAPTER 2

PROBLEM DOCUMENTATION

Problem Evidence

In order to document the problem of the tenth grade novice drivers, who exhibited a lack of important skills needed to acquire and process drivers' education (DE) information, the targeted classes were given a questionnaire and survey about road rage, attitude and feelings toward safe driving. The students completed the pretest the first week of the class, which was followed by a posttest at the end of the 9 week course. The findings are based on novice drivers' feelings and attitudes towards safe driving and road rage.

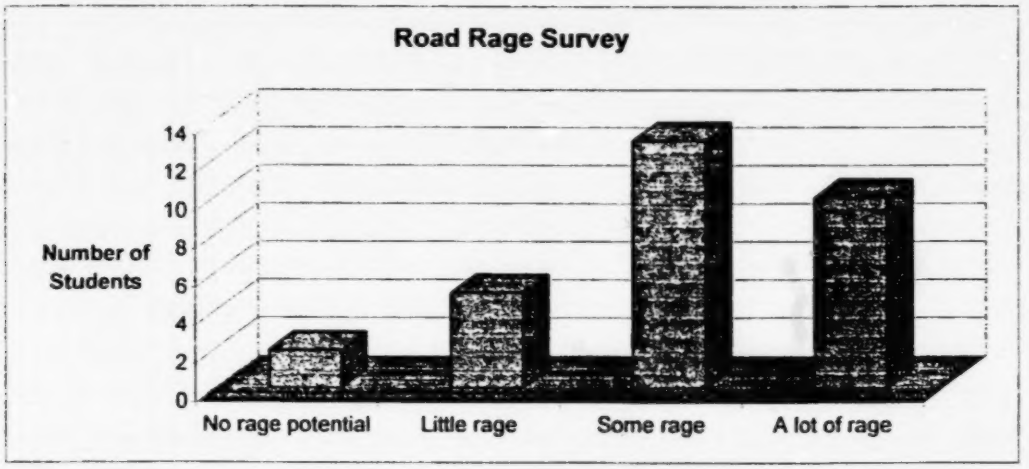

Figure 2.1: Students resurveyed during the 91/2 weeks period 4 students showed no potential for rage, 6 students showed little rage while 14 students showed some rage and 8 showed a lot of potential for rage.

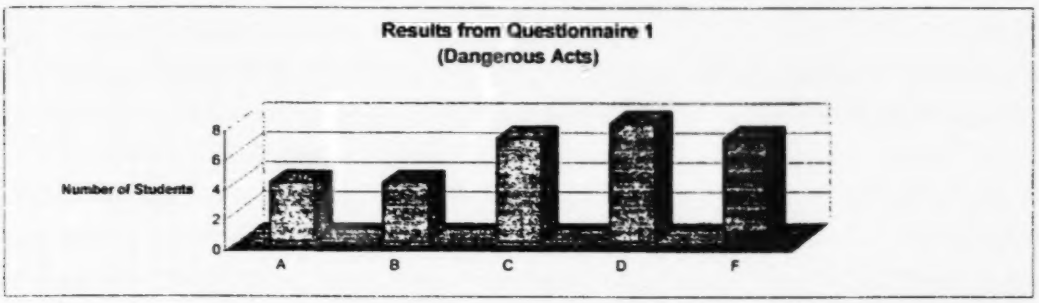

Figure 2.2: Students were also analyzed by identifying and analyzing dangerous acts on a survey. Four students scored a grade of A, four students scored a grade of B, 8 students scored a average of C. While 16 students scored either a D or F grade.

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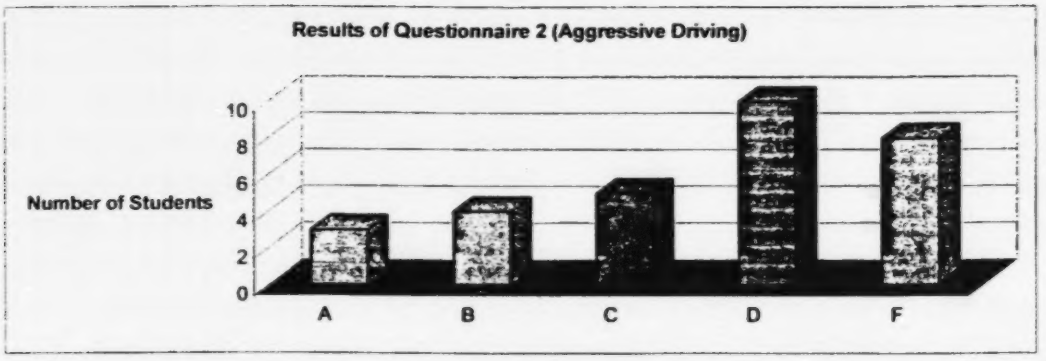

Figure 2.3: The last section of the pretest was to test students' aggressive driving habits. Student were tested on dangerous driving act that show driving behaviors in a threatening manner, such as flashing light while tailgating, arguments over parking spaces, cutting of another motorist. 18 of 30 students received and grade of D or F while six received a grade of C and six students received a grade of A or B.

The pretest was given in three sections with two surveys, and a questionnaire. The survey shows how many students have the potential rage or a lot of rage. The two survey graphs show the actual grades of how many students received an A-F grade on dangerous acts and aggressive behaviors that leads to potential road rage. Of the 30 students surveyed in this pretest there is evidence of a problem in the conventional strategies to teaching safe driving habits in (DE) classes. Students' often responded that they do not avoid a dangerous or aggressive act. Some of the students responded that they experienced family members with these driving habits and thought they were normal. "Parents may inadvertently contribute to the failure of driver education to produce safe drivers. They appear to allow driver education graduates more freedom and offer less supervision, exposing new drivers to increase risk" (Handler, M.G, 1993, p.7).

Probable Causes

The evidence at this site indicated that there's a lack of comprehension in traditional DE classes. DE classes have been centered on lectures and textbooks with 25-30 classroom hours, with limited instructions, observation and supervised driving practice on the road. I usually drive with my students between 6 and 10 hours with no type of illustrated instructions in between for at least basic emergency procedure. "Driving simulators are an interactive technology that's been with us since the 1950s. During the '70s and '80s they seemed to lose favor with many educators but now they're being mentioned with increasing frequency with reference to their potential in dealing with specific training problems" (Brackett, 1995, p. 12).

Traditional DE teachers are only dispenser of information and trainer of skills. Giving students information about driving skills alone does not produce proficient drivers. Traditional DE teachers do not explore ways that will help student participate actively and accept the responsibilities associated with the learning.

When driving with my students, I have noticed they are less able to control their attention span, sometimes they will be at a red light and begin to daydream. Their ability to scan the environment effectively, detect potential hazards early and make tough decisions quickly need to be the focus of training that is missing from the driver education curriculum. "Driver education has declined just as the driver/vehicle/roadway system is becoming technologized and harder to understand" (Wilde, 1995, p. 32).

My students need to learn psychomotor and cognitive skills that will teach them to handle a vehicle, interact with other road users adequately, to pass a licensing test and satisfy the concerns of parents, guardian, and become independently mobile. "DE's goals

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can be achieved only by influencing a wide range of educable qualities of novice drivers. These qualities include the information processing and vehicle handling skills that they use while driving, as well as the enduring personal traits that they bring into the car with them such as knowledge, motives and social influences" (Briggs D. Wagner, 1998, p. 5).

Most of the time my students seem to slow down before running the yellow light making it even more likely that they would be caught by the red light. Their inexperience makes it hard for them to respond in the quick complex situation, they do not have prior practice of making this decision rule. "Driver education should concentrate on two objectives (1) Improve collision risk estimation skills; and (2) reducing young drivers willingness to take risk while driving" (Jessor, 1997, p. 11).

I feel driver education courses are too short, and you can only give students a briefing of an effective DE safety program. This can cause students to be overconfident in their abilities; they are motived to drive without considering their values and responsibilities as a user of sharing the highway transportation system resulting in risky behavior. Jonah said, "Drivers under 25 were slower to recognize potential hazards and that less experienced drivers were less successful at identifying distant potential hazards than more experienced drivers... they were equal with respect to nearby ones" (1996, p. 21).

DE classes need strong and clear understanding of engineering different speed choices. Even though the physics of speed, stopping distances, and impact severity are reasonably well spelled out in the driver education text. The necessary distinctions among different level of excess speed are neglected. Speed is a key to novice drivers' errors.

CHAPTER 3

Driver educators have not agreed about best practices for driver educator instructions. There has been opposing views about what was most important in DE. But most all agree that new drivers need to be taught psychomotor and cognitive skills to handle a vehicle and interact with other road users adequately to pass a licensing test. Real-time, on-road cognitive functions such as attention switching and decision-making should be addressed as psychomotor objectives. "Education in some of the values areas and in the critical thinking necessary to it could begin at age 13 (after most have reached formal operational cognitive stage)" (Hoffman, 1999, p. 15).

Hoffman said, there are likely as many ways to structure the objectives as there are models of the driver, driving tasks errors and failures, specific difficulties of novice drivers, and the underlying causal influences for all of the above. I'm glad to find out there are many ways to structure objectives of driver education because most previous curriculum developments seem to have been based on very simple information-processing models. A focus on details of routine psychomotor tasks, for example, would absorb resources better used on objectives more clearly related to safety. "In contrast, the seminal safe performance curriculum was based on an extensive conceptual task analysis with many hundreds of task components identified and rated as to criticality. A number

of curricula have been revised and improved incrementally over the years, seemingly with an eclectic theoretical basis, if any" (McKnight et al., 1991, p. 18).

The mandate of my action research project was to step back and take a longer and broader view of DE and its future potential. This researcher is attempting to present a model or structure to stimulate discussion and guide research and curriculum development. We have attempted to move beyond simple models, which appear to exclude too much information that may yield important insights into objectives and methods. The intent is to strike a practical balance, with more detailed analysis than the simple model but well short of a microscopic task analysis. There are a number of reasons to support this arguably broader-brush approach, not least of which is the hypothesis that a broader influences base needs to be developed or novice driver safety will not be improved regardless of how thorough the understanding and teaching of specific driving task components. "We must shift some of the billions of dollars we spend on accident survival to improving driver skill training especially young drivers spend thousands less on your childs car and thousands more on driver training" (Automotive Marketing, 1999, p. 2).

I like the idea of stating the objectives with room for expansion or deletion, allows us to keep them closer to proven risk factors than would be possible with more microscopic objectives. This gives us more confidence that achieving the objectives can have some safety impact. For example, a broader performance objective might be smoothness in steering, compared to a narrower objective of knowing the details of how to hold and turn the steering wheel. The broader objective of demonstrating smoothness in steering is more plausibly related to safety than details of holding and turning the

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wheel. The broader objective involves both visual and motor skills, and it is known that poor visual skills are related to risk and inexperience. The integration of skills that are reflected in smoothness are related to experience and therefore perhaps to safety. "We investigated how individuals learn from imagined, might have been scenario. We hypothesize that individuals are more likely to learn when they have responded to an event with self-focused counterfactual thoughts" (Crossan, Lane, and White, 1999).

Before driver and traffic safety education can hope to modify the behavior of young people teachers must become more than dispensers of information and trainers of skills. Information and manipulative skills alone do not produce proficient drivers. Robinson, (1995) said, learning needs to have personal meaning if students are to behave differently. We need to facilitate meaningful learning, that encourage students to (1) examine and clarity their feelings and values, (2) explore alternative forms of behavior and related consequences, (3) make and try out decisions in new situations and (4) formulate generalizations. Students need to participate actively in these higher forms of learning. In short, information and skills must be taught in such a climate that students see and accept the responsibilities associated with the learning. "Achieving DE's safety goals will be the result of the application of curriculum resources delivered through a substantial educational and influence infrastructure.

The curriculum resources and other influences need to be driven by the objectives and organized according to the objectives structure" (Robinson et al., 1995, p. 5).

Driving is a complex mix of cognitive, perceptual, and psychomotor tasks; Novice drivers must learn to integrate these various tasks into smooth safe performance. In the past, the approach to driver education has stressed the acquisition of fundamental

driving knowledge in the classroom and the acquisition of fundamental driving skill during on-road vehicle experiences. "It's no surprise that many of us feel uneasy, even panicky when our children ask for the car keys. Unlike a baby's first step, the complex task of driving alone may occur before a teenager is ready" (Diana Lynn, 1999, p. 15).

Malfetti (1996) said that an underlying assumption of this development is that the acquisition of knowledge is a necessary but not sufficient step to driving competence. The knowledge must lead to skill; knowing how long it takes a vehicle traveling 55 mph to stop is not the same thing as stopping a vehicle traveling 55 mph. Drivers must constantly make judgment based on visual information. Learning the safe distance for following another vehicle is different from recognizing that distance when it actually presents itself. Therefore, one obvious area for development is visually based materials that will allow a student to (1) acquire the visual information needed to make driving judgments, (2) practice with feedback and, (3) be tested against some agreed upon criterion. "Safety education is crucial to living in a technological world. Man can no longer rely on his instinct of self-protection to live safety among the great hazards produced by technological advances. He must learn new safety skills and new behavior patterns. How well he learns them depends considerably on the effectiveness of safety communications (Malfetti, 1996, p. 20).

It has been suggested that it is time to develop an alternative term to replace "driver education," as that term may be too firmly linked to the current structures. However, a clearly superior candidate has yet presented itself. "Road Safety Education" is already in use in some jurisdictions, linking DE to earlier forms of road user education. "KQ Corporation is introducing Prime Driver, technology-training programs that

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integrates the educational components of behavior based classroom instruction, behind the wheel simulation, and on the road instruction" (Business Editors/High Tech Writers, 2001, p. 42).

With respect to safety, the assumptions underlying some earlier DE curricula and structure have apparently not been altogether correct, as the resulting programs were shown to be ineffective for improving net safety. The better training seems to induce motivational and social forces that balance out the benefits of better skills and knowledge. There may be specific ability improvements that could further improve safety performance and this should be a priority for DE. "The knowledge that drivers obtain from experience can be a two-edged sword: they learn bad habits and risky behaviors at the same time as they become wiser about the operation of the system" (Fuller, 1992, p. 75).

Fuller (1992) also said that novice drivers should understand the course of their own learning and that of their peers, as well as the special problems and risks that they face. They should be sensitive to their own progress and apply self-tests to determine proficiency and weaknesses. They should have insight into the impact of an unskilled driver on other highway users. "Driver education students need to have a detailed grasp of the rules of the road, signs, signals, and roadway markings. If these have been learned previously, they should be reviewed for mastery. Students should be able to describe the rationale for regulation of driving behavior on the public roads and specific reasons for key regulations, such as those regarding speed, impairment, occupant restraints, and licensing requirements" (NHTSA, 1995, p. 52).

Expectancy is a key human factor in highway system operation, and novices are at special risk of violating the reasonable expectancies of others, either through deliberate actions or inadvertently. Novices should be able to analyze road users' expectancies and outline the likely manner and consequences of violating them. "Novice should develop realistic expectations about the assistance they will receive from the roadway and should be able to identify potential design/maintenance errors. They should also recognize the reverse, that the system in effect has expectations and assumptions about a wide range of drivers performances, from speed choice to noticing signs, and there are potentially serious consequences to violating system design assumptions" (Konecni et al, 1992, p. 4).

Drivers must constantly make judgments based on visual information. Learning the safe distance for following another vehicle is different from recognizing that distance when it actually presents itself. Therefore, one obvious area for development is visually based materials that will allow a student to (1) acquire the visual information needed to make driving judgments, (2) practice with feedback and, (3) be tested against some agreed upon criterion. "Key to the success of the skills and knowledge portions of DE is the mix of classroom and lab instruction, part-risk practice, and actual driving. In the past, instructional sequencing has been a matter of meeting the logistical needs of the school or instructor" (Kay, Peyton & Pike, 1997, p. 20).

Driving is a complex mix of cognitive, perceptual and psychomotor tasks. Novice drivers must learn to integrate these various tasks into a smooth, safe performance. In the past, the approach to driver education has stressed the acquisition of fundamental driving knowledge in the classroom and the acquisition of fundamental driving skills during on-road vehicle experiences. "While it may be desirable to avoid the crash and bump

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atmosphere of the more lurid computer games, computer-based instruction promises to be useful for DE. Multimedia resources can facilitate self-paced learning, by providing equivalent optional paths through the learning process, with ongoing diagnosis, evaluation, and feedback" (Rolls and Ingham, 1992, p. 30).

To perform at a suitably low level of risk tolerance, novice drivers should fully value the social and cost consequences of having crashes. They should understand available cost information, evaluate benefits/costs of driving risks, and relate them to other types of risks and benefits. "Novices need to became clear on their own values and assess their personal risk preferences. They should be able to identify the relatively low social status and problem behavior typical of high-risk drivers, and they should be committed to low crash risk as an expression of their own self-worth" (Parker et al, 1994, p. 28).

Malfetti, (1993) advised, to improve DE quality and impact, better use of instructor time is essential. Automation and greater use of parent education, peer teaching, and group work can help. However, investment for equipment and upgraded teacher training are probably essential to make optimal use of new instructional tools. "The number of hours to be required in a new DE is very much tied to the economic bottom line. Government regulation of the market, through mandatory training, graduated licensing tougher license tests. Subsidy, or direct regulation of DE is the principal levers" (Malfetti, 1993, p. 16).

A large majority of the driving practice should be done with a parent/guardian rather than a DE teacher. Parent training must be encouraged in order that parents understand and maintain value-based behavioral expectations for the protégées. If the

student has learned to value meeting other drivers' expectations by signaling lane changes, the parents must not discourage this based on their own values. "At least one major parent-education package is under preparation at this time, and this will remain an important area of development" (Kohlberg & Candee, 1994, p. 29).

Wilders, (1994) stated, novices should internalize the certainty that other drivers will not always do what they should. They must understand the frequency of drivers' errors and recognize the mutual responsibility to help correct errors. They should be committed to avoiding conflicts and crashes regardless of other road users' errors and fault. "Driving conflicts result when safety margins are compromised. Novices should recognize the importance of predictability and expectation in interacting with other road users" (Wildes, 1994, p. 12).

Novice drivers should recognize error corrections situations requiring emergency evasion maneuvers. They should understand the principles of, and be able to demonstrate, wheel-off-road recovery, head-on collision avoidance, and rear-end collision avoidance. "When a vehicle in a skid has rotated beyond the limits of possible recovery, it may be helpful to lock and hold the brakes to permit the car to travel in a straight line and avoid regaining enough traction to alter direction sharply or roll over. Novices should be able to define the point of no return in a skid and relate reasons for lock up as a last resort when correction attempts have failed" (McKenna and Crick, 1992, p. 8).

Novice drivers must commit to proper and moderate speed choice. To do this they have to recognize the effects of excessive traveling speeds on error correction time (their own and others' errors), which can be critical even when the traveling speed seems acceptable. They should be able to discuss reasons for personal speed choices and outline

factors/conditions leading to variation in speed choice. "Novices must be able to identify when they are too close to the vehicle ahead at all speeds, calculate effects of headways on available error correction time, and understand the implications of short headways" (Basch etal, 1997, p. 23).

Basch, (1997) felt novices should learn the benefits of early and gradual deceleration and practice it with due consideration of the expectations of following drivers. They should be able to modulate steady light braking and display jerk-free stops. They should demonstrate producing and holding a complete stop on different grades and be able to define the purpose of parking brakes. "As anti-lock brakes become universal, wheel lock and thresholds become of little concern to drivers, but appropriate knowledge and skill for obtaining maximum output from these systems will be needed. The benefits and limitations of anti-lock systems must be clearly understood to avoid the possibility of overconfidence in their capabilities" (Fiedorwicz and Triles, 1995, p. 16).

The following objectives processes and active plan were developed in the summer of 2001.

I. Objective

Students should be able to display success in social, behavioral, and mental processing skills needed for my Cybernetic Unit for Driver Education.

II. Objective

From the skills they have learned in the classroom phase of driver education, students should be able to engage in the simulator phase of driver education. Students will learn from imagination, might be scenario. Students will be able to engage in self corrected behavior, and evaluate themselves from self corrected feedback.

III. Process Statements

a. Develop a Cybernetic Unit for Driver Education
b. Introduce skills for proper simulator use.
c. Train students to create graphic organizers, note taking techniques and journaling.
d. Provide direct instruction on the seriousness of preparation and application of the simulator phase.
e. Develop graphic organizers to be utilized by teachers and students.
f. Monitor students' performance.
g. Assessments will include checklists, journaling, and a final project rubric will measure if the students skills are acceptable for phase 11 of drivers education.

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ACTION PLAN

1ST 4 ½ WEEKS

Week 1:

- Review returned parent consent forms and discuss action plan with students.
- Introduce personal journaling, using a three ring notebook as a main organizers of all materials.

Week 2:

- Model the use of graphic organizers as an aid in note taking and other on task skills
- Practice note taking

Week 3:

- Begin students journaling in conjunction with social, behavioral and mental processing skills they need to become successful in the simulator phase of the driver education.
- Continue to teach and model graphic organizers

Week 4 ½:

- Students begin choosing and using graphic organizers to learn the task skills they need to prepare themselves for the cybernetic unit of driver education
- Continue to monitor students journals
- In groups students share the skills they learn through either graphic organizer role play or summery of what skills they have learn.

2nd 4 ½ WEEKS

Week 1:

- Individual feedback presentation, oral and written information concerning an individual desired or undesired behavior.

Week 2:

- Group members decide together a level of behavior they should accomplish and come up with a group mind map.

Week 3:

- In your group come up with a policy, a written document communicating the standard, norms, or rules for desired behavior.

Week 4 ½:

- In a whole class assignment, students vote on one of the groups' best written pledge to exhibit desired behaviors in simulator training.
- Tabulate results of assessments
- Students complete their journals with a post journal reflection

To measure my action research, I will present formative and summative evaluations.

THE FORMAT WILL CONSIST OF:

1. Process evaluation – how training is learned, used and received.
2. Product evaluation – impacts on skills, knowledge, attitudes or behavior.

THE SUMMARY WILL CONSIST OF A:

1. Reflective evaluation – of the knowledge attitudes, and behaviors outcomes.

Evaluation is a key to successful safety education, OECD Report on Safety Education, 1996

CHAPTER 4

Project Results

The objective of this project was to have students in the driver education classroom phase be able to become better novice drivers through a stage of simulator activities before they go on to the actual behind the wheel phase of driver education. My goal was to prepare students to be able to engage in self-corrected behavior and evaluate themselves from self corrected feedback through a cybernetic unit for driver education. The implementation of graphic organizers, note taking and journaling were selected to help prepare students for the learning phase of simulation. Cooperative learning was used to teach the use of graphic organizers and was also employed as an instructional technique in delivering note taking and journaling techniques. Note taking and journaling were taught directly while students were in base groups. The groups were established the first week of class and were maintained throughout the unit. Observation of the groups functioning led the teacher/researcher to conclude that the students' skill development was on target.

Subject matter lessons were modified so that cooperative groups used skills such as sharing ideals and thoughts, listening and cooperating with others to develop a plan to accomplish the driving task objectives. In order to assess the effects of

cooperative learning and a resolution for training students driving behaviors I gave my students a posttest using the two questionnaires and surveys.

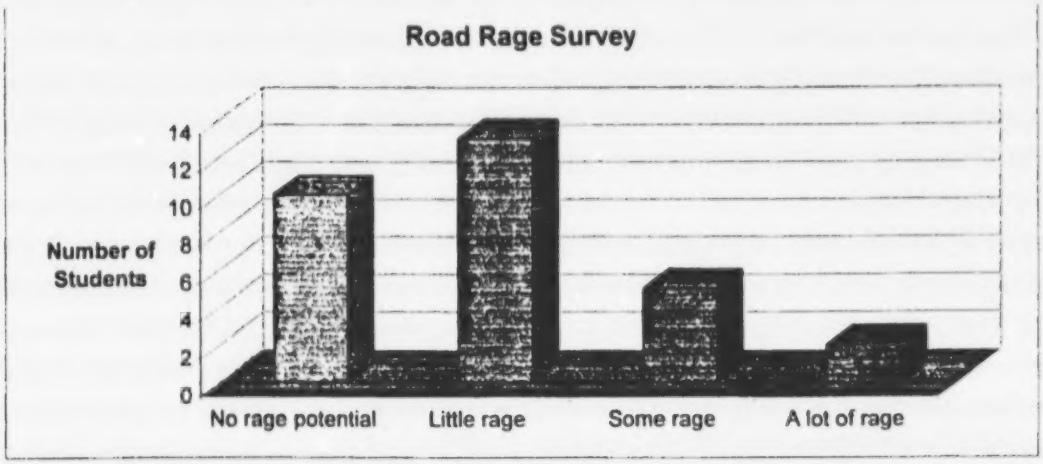

Figure 4.1: Students post survey showed much improvement in students, knowledge to avoid road rage potential nine students showed no rage with the grade of A, twelve student show little rage with a grade of B, four showed some rage with grade C, while only two students showed potential for a lot of rage.

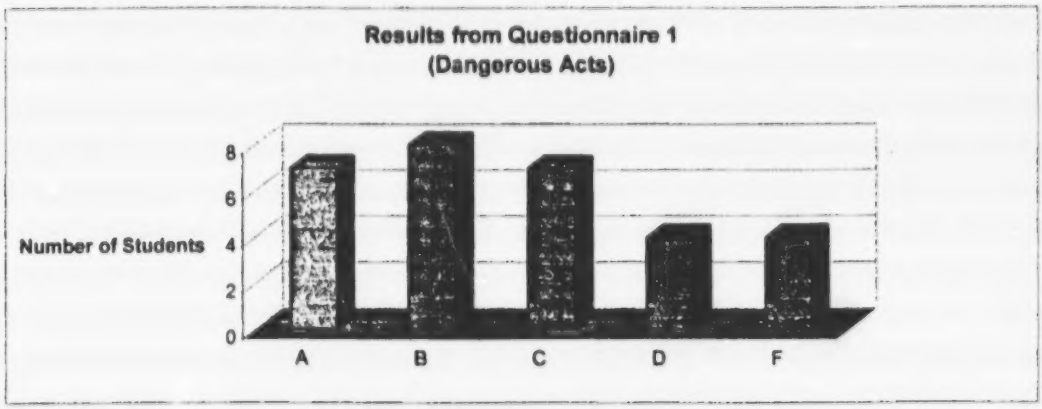

Figure 4.2: Student showed improvement on identifying and analyzing dangerous acts. Six students received a grade of A, eight students received a grade of B, six

students received a grade of C, and eight students received a grade of D or F. There is a need for more work on dangerous acts.

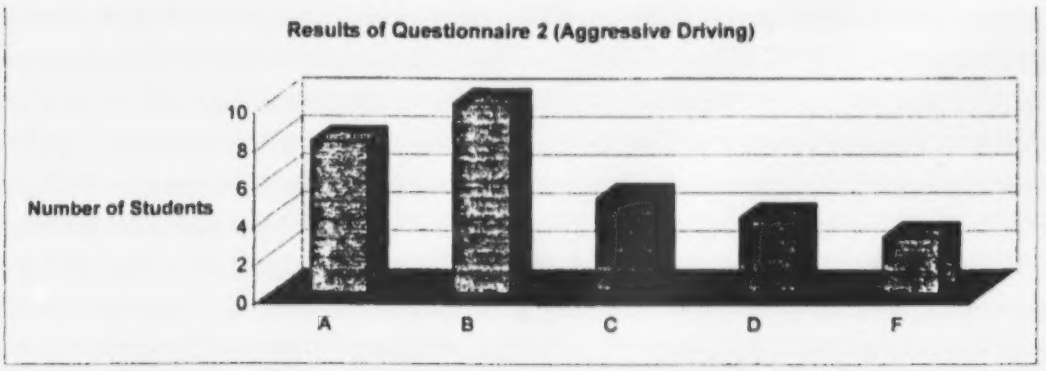

Figure 4.3: Eight students showed excellent understanding of aggressive driving acts scoring a grade of A. Ten students showed they understood aggressive acts very well scoring a grade of B, Five students received a grade of C, four received a grade of D, while three student received a grade of F.

These graphs demonstrate that the action plans appears to have had a positive effect on all targeted driving behaviors. Those behaviors previously demonstrated by the targeted students with high risk driving habits show a decrease.

Based on the presentation and analysis of the data on novice drivers' behavioral choices, the students showed improvement in the critical thinking and decision making skills needed to become a safe novice driver. I was impressed with the social skills learned from their peers, concerning their different beliefs and concepts about safe driving behavioral patterns.

The cooperative learning sessions and resolution lessons appear to have transferred to interpersonal behavior. Students time on task increased and their views of behind the wheel preparation improved.

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The students' cooperation in the learning task and the power of positive peer pressure has positively affected my findings.

After analyzing my intervention strategies to help reduce novice drivers' aggressive, unsafe, and dangerous driving acts, I believe they would work well in a wealthy and perfectly care free school community. My goal was to improve D E quality and impact through better use of instructors' time, and greater use of peer teaching and effective group work. However, in reality in my targeted school setting, teacher time requirements for teacher training and extra class time for more detailed learning is a costly problem. With my strategies there is a need for investment in equipment and upgraded teaching training. This is essential to make optimal use of new instructional intervention strategies to help aid novice drivers. But expanding instructors' hours and equipment cost is a difficult economic and political problem facing DE. There was a perceived threat, concerning the application of technology to DE teachers who had been in the system for many years. I recommend that the driver education industry focus on developing software for teaching and testing knowledge and skills in an individual self-paced automated way.

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APPENDICES

APPENDIX A

ROAD RAGE SURVEY

Name_____ Grade_____

1. How compassionate a person do you consider yourself to be on a scale of 1-5? 1=least 5=most
    - 1
    - 2
    - 3
    - 4
    - 5

2. How good a person do you consider yourself to be on a scale of 1-5? 1=least 5=most
    - 1
    - 2
    - 3
    - 4
    - 5

3. How much anger do you experience daily on a scale of 1-5? 1=least 5=most
    - 1
    - 2
    - 3
    - 4
    - 5

4. How often do you experience anger, rage or hate?
    - Hourly
    - Daily
    - Weekly
    - Rarely or never

5. How often do you experience enjoying fantasies of violence?
    - Hourly
    - Daily
    - Weekly
    - Rarely or never

6. How often do you experience feeling competitive with others?
    - Hourly
    - Daily
    - Weekly
    - Rarely or never

APPENDIX A

ROAD RAGE SURVEY

Name_____ Grade_____

7. How often do you experience feeling impatient with others?
    - Hourly
    - Daily
    - Weekly
    - Rarely or never

8. How often do you experience feeling like being rude, obnoxious or sarcastic to someone?
    - Hourly
    - Daily
    - Weekly
    - Rarely or never

9. An angry person can always choose to calm down by considering consequences and reevaluating the situation
    - Agree
    - Disagree

10. When I get angry I feel like throwing things, slamming doors or banging the wall
    - Agree
    - Disagree

11. My temper helps me to get other to do what I want
    - Agree
    - Disagree

12. I have gotten angry and later regretted something I did or said
    - Agree
    - Disagree

13. My anger interferes with my thinking
    - Agree
    - Disagree

APPENDIX B

STUDENT QUESTIONNAIRE ON DANGEROUS ACTS

TRUE OR FALSE

Tailgating

Passing on the shoulder

Blowing your horn when coming out or alley

Stopping when coming out of a alley

Slowing down in a school zone

Driving thought the yellow light that is turning red

Failing to yield to merging traffic

Changing lanes without signaling

Flashing high beams at the car in front of you

U-turn on a curve or hill

Slowing down in a construction zone

Not stopping for a school bus while unloading passengers

APPENDIX C

STUDENT QUESTIONNAIRE ON AGGRESSIVE ACTS

YES or NO

Tailgating

Making rude gestures

Passing on the shoulder

Pulling into a parking space someone else is waiting for

Falling to yield to merging traffic

Flashing high beams at the car in front of you

Waiting until the last second to merge with traffic on the highway

Changing lanes without signaling

Driving through a yellow light that is turning red

Honking the horn

Double parking

Driving 10 mph or slower under the speed limit

APPENDIX D

Checklist For Creative Thinking Skills individually & Groups, For Novice Drivers'

Teacher:_____ Class:_____ Date:_____

Target Skills:_____

Ratings:

F = Frequently
S = Sometimes
NY = Not Yet

NAME OF STUDENTS	INDIVIDUAL HYPOTHESIZING	GROUP HYPOTHESING	INDIVIDUAL PROBLEM SOLVING	GROUP PROBLEM SOLVING	INDIVIDUAL DECISION MAKING	GROUP DECISION MAKING	INDIVIDUAL DETERMINING CAUSE/EFFECT	GROUP DETERMINING CAUSE/EFFECT	SELF EVALUATION	GROUP EVALUATION	COMMENTS
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3.											
4.											
5.											
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30.											

APPENDIX E

Checklist for Critical Thinking Skills For Novice Drivers'

Teacher:_____ Class:_____ Date:_____

Target Skills:_____

Ratings:

F = Frequently
S = Sometimes
NY = Not Yet

NAME OF STUDENTS	INDIVIDUAL WORK PROJECT	ATTRIBUTING/GROUP PARTICIPATION	LISTEN, ENCOURAGE OTHERS	COMPARING/ CONTRASTING	CLASSIFYING PROCEDURES	SEQUENCING PROCEDURES	GROUP PROBLEM SOLVING	DETERMINING CAUSE/EFFECT	SELF EVALUATING	COMMENTS
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APPENDIX F

Cybernetic Unit Assessment Grade Level: 10th

Scale / Indicator	Indicators	1	2	3	4
Behind the wheel readiness	- Seat belt - Check mirrors - Adjust seat	Utilizes no components	Utilizes 1 component	Utilizes 2 components	Utilizes all components
Identifying the problem	- Peripheral vision - Proactive - Defensive	Utilizes no components	Utilizes 1 component	Utilizes 2 components	Utilizes all components
Brainstorming Ideas for solutions	- Suggests solutions	Seldom participates and few appropriate solutions	Sometimes participates and offers some appropriate solutions	Often participates and offers appropriate solutions	Active participant and offers appropriate solutions
Prioritize solutions	- Ability to prioritize	Few in order	Somewhat in order	Mostly in order	All in order
Plan evasive action	- Ability to plan	Little evidence of ability to plan	Some evidence of ability to plan	Good evidence of ability to plan	Excellent evidence of ability to plan
Take action	- Stay calm - Use proper procedures to take action	Doesn't stay calm or take appropriate action	Stays calm and does not take appropriate action	Stays calm and takes appropriate action	Exceeds level of calmness and takes appropriate action
Evaluate action	- reflections	Reflection touch on concepts	Reflections are very basic	Reflections are insightful and evidence of self-assessment	Reflections show insightfulness and ability to self-assess

Scale: 16-15 = A 14-13 = B 12-11 = C 10-9 = D

Total Score:_____

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